

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE	PAGE OF PAGES 1 2
2. AMENDMENT/MODIFICATION NO. <b>0001</b>	3. EFFECTIVE DATE <b>08/15/2011</b>	4. REQUISITION/PURCHASE REQ. NO. <b>N/A</b>	5. PROJECT NO. (If applicable)		
6. ISSUED BY CODE <b>NASA Shared Services Center (NSSC) Building 1111, C Road Stennis Space Center, MS 39529-6000</b>		7. ADMINISTERED BY (If other than Item 6) CODE <b>SAME AS IN ITEM 6</b>			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				<input checked="" type="checkbox"/> 9A. AMENDMENT OF SOLICITATION NO. <b>2011 SBIR/STTR Solicitation</b> <input type="checkbox"/> 9B. DATED (SEE ITEM 11) <b>07/18/2011</b> <input type="checkbox"/> 10A. MODIFICATION OF CONTRACT/ORDER NO. <input type="checkbox"/> 10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE			

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS.  
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

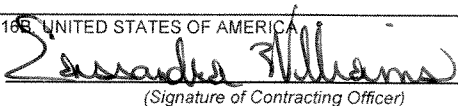
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor ☐ is not, ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

This amendment is hereby issued to amend Chapter 9.1.3 SBIR Research Topics to incorporate the following information under Subtopic S1-07 Cryogenic Systems for Sensors and Detectors.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) <b>Cassandra Williams</b>	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED <b>August 15, 2011</b>
(Signature of person authorized to sign)			

- Heat Switches

Heat switches for operating ranges of  $< 0.2\text{K}$  and  $\geq 0.2\text{K}$  (approaching  $10\text{K}$  and slightly higher) are of interest. Switches with On/Off conductance (i.e., switching) ratios of  $10^5$  or greater, low off conductance and simple manufacturing/operational capability are sought. More robust (i.e., operating ranges and conductance performance) heat switches are currently needed for ease of operation when used with space flight applications.

- Highly Efficient Magnetic and Dilution Cooling Technologies

The desired temperature range for a proposed system is  $< 1\text{K}$ . Presently, systems with performance capabilities on this scale are limited to continuous ADRs. Alternative systems and/or technologies are desired.

- Low Input Power ( $< 20\text{ W}$ )/Low Temperature Cooling Systems

Cooling systems providing cooling capacities upwards of  $0.3\text{ W}$  at  $35\text{K}$  with heat rejection capability to temperature sinks as low as  $150\text{K}$  are of interest. Presently there are no cooling systems operating at this heat rejection temperature. Input powers should be limited to no greater than  $10\text{ W}$ .